

*Full-Length Article***The Use of Music in the Chronic Pain Experience: An Investigation into the Use of Music and Music therapy by Patients and Staff at a Hospital Outpatient Pain Clinic**Katie Fitzpatrick<sup>1</sup>, Hilary Moss<sup>1</sup>, Dominic Colman Harmon<sup>2</sup><sup>1</sup>*Irish World Academy of Music and Dance, University of Limerick, Limerick, Ireland*<sup>2</sup>*Department of Anaesthesia and Pain Medicine, Limerick University Hospital, Dooradoyle, Limerick, Ireland***Abstract**

This study uses mixed methodology research to examine the use of music in the chronic pain experience. One hundred and seven adult patients attending an outpatient pain clinic at a general hospital completed a patient survey. 91% rated music as somewhat important to them, 69% benefit from music listening and 43% changed their use of music due to chronic pain. 56% of respondents had an interest in availing of music therapy as part of their treatment. Three themes found in the qualitative results (music for relaxation, positive response to music and music for coping) corresponded with the highly rated reasons for listening to music in the quantitative survey (enjoyment, relaxation and tension relief). Music listening was more common than active participation in music.

Seven staff members completed surveys on their use of music and thoughts on music therapy in this setting. Staff rated music as very beneficial for people with chronic pain and 100% saw a role for music therapy in the treatment of patients with chronic pain. This study is one of few to map how people with chronic pain use music to self-care and to explore the role of music therapy in a hospital out-patient pain department. It offers potential for music therapy to be offered as a non-pharmacological intervention to assist people in developing music-based resources and strategies for managing chronic pain. Further investigation is recommended.

**Keywords:** *chronic pain, music, music therapy, outpatient.*multilingual abstract | [mmd.iamonline.com](http://mmd.iamonline.com)**Introduction**

Chronic pain can be defined as “persistent and unremitting” pain which is present for more than six consecutive months [1]. It is a worldwide health problem and accounts for one of the main reasons for seeking medical care [2]. It is complex, multidimensional, and has experiential features. These include biological, psychological, sociological, and spiritual factors that modulate the pain threshold and its intensity.

This research is a mixed methodology study to examine the use of music in the chronic pain experience. The potential benefits of music and music therapy as a non-pharmacological intervention in the management of chronic pain in Ireland are considered.

In 2006, Fullen, Hurley, Power, Canavan and O’Keeffe [3] described the need for national strategies for chronic pain management and found the facilities for treating patients with

chronic pain in Ireland to be lacking. Chronic Pain Ireland, an organization who advocate for better awareness, education and recognition of chronic pain, state that 42% of people with chronic pain think that others doubt the existence of their pain and that twenty-one percent stated that the pain was so intense they wanted to die [4]. It seems imperative that new ways of supporting people with chronic pain are developed. This research investigates how people with chronic pain currently access music and the potential for use of music interventions in the treatment of outpatients with chronic pain.

Music, its meaning and function, can be highly personal. Perceptually, pain and music are complicated processes that involve different domains and are handled by many different areas of the brain [5]. The potential impact of pain on the physical, emotional, cognitive/behavioral, social and spiritual domains has been well-outlined. Physically, pain can lead to increased blood pressure and pulse, increased rate of respiration, muscle tension and disruptions in sleep. Pain is an emotional experience and can lead to anxiety, fear and distress. Psychological disorders, such as major depressive disorder, have been linked to chronic pain [6- 8]. Chronic pain has no apparent biological value, can occur for no biological reason and persists beyond the point that healing would be expected [9]. Feelings of despair or hopelessness in a person with chronic pain are unsurprising when there might be no known cause or means of managing the pain. Regarding

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Dr Hilary Moss | Address: Irish World Academy of Music and Dance, University of Limerick, Limerick, Ireland | E-mail: [hilary.moss@ul.ie](mailto:hilary.moss@ul.ie) | COI statement: The authors declared that no financial support was given for the writing of this article. The authors have no conflict of interest to declare. Ethical approval for this study was obtained by the University Hospital Limerick Ethics Board

cognitive needs in people with chronic pain, impairments in memory and attention, and changes in the individual's perception of pain are noted. Quality of life may also be reduced, as pain disrupts social engagement, relationships, employment status and daily activities [6].

There is evidence to show that music can reduce pain perception and intensity (5, 7, 10, 11). Mechanisms behind this analgesic effect are believed to be cognitive and emotional with music being an environmental stimulus that can modify pain perception by inducing the release of endogenous opioids which produce analgesia by activating opioid receptors. Studies have shown that music can modulate emotion and mood, reduce anxiety and pain, and induce dopamine release, which plays a central role in analgesia [5, 8, 11].

Studies on the effects of music listening on pain seem to be more prevalent in the literature than studies on the effects of music therapy on pain [12]. Music may have the potential to be developed as an effective self-management treatment, offering hope and a feeling of control to people who may feel despair. Emotional stress and negative affect can decrease pain threshold. Strategies that give hope and a means of coping may increase pain threshold and lead to a reappraisal of pain.[15].

There seems to be a consensus in the literature with positive hypotheses and outcomes for the use of music in the treatment of pain. It appears that music has the potential to be a useful non-pharmacological intervention in the management of pain. The literature indicates strongly that music can influence perception and intensity of pain by affecting the individual physically, emotionally, cognitively and neurologically. In the context of outpatients with chronic pain, although there is little literature written on this specific population, there seems to be possibility for the inclusion of music interventions in a pain management programme. Overall, however, studies to date are relatively scarce with small sample sizes.

This study builds on previous work in this area and asks the following research question: How do patients with chronic pain use music and is there potential for music therapy for this population?

## Materials and methods

### Setting

This study was conducted at the Pain Clinic of the *University Hospital Limerick* which serves a population of 340,000 people in the mid-west region of Ireland. The study was approved and conducted in accordance with the ethical standards of the University of Limerick Ethics Committee. All patients received standard medical care throughout the study.

### Method

A mixed method study using survey method was selected, using both qualitative and quantitative questions (see

Appendix One for examples of both patient and staff surveys). Both forms of data were collected concurrently in a single phase. The survey was designed in consultation with a pre-existing questionnaire as used in a study by Mitchell et al. (2007) which looked at the effects of music listening on chronic pain [14]. The survey for patients had fifteen questions. An additional short survey was designed to gather staff perceptions of music and chronic pain. This was anonymised, distributed by email and once completed, left at an allocated drop off point at the nurses' station. The survey was piloted on a sample of the target population at the pain clinic. Once piloted and adjusted, an information leaflet was distributed to patients attending the outpatient pain clinic by the nurse. If consented to partake, the survey was filled out in the waiting area and handed it back to the nurse upon completion.

### Participants

Convenience sampling was used and a sample size of 100 adult patients was determined as it is sufficient to detect a moderately strong correlation of 0.3 as statistically significant at a 5% level of significance. All outpatients at a weekly pain clinic were invited to complete the survey over five weeks. 107 patients completed the survey.

Inclusion criteria were: 1. All adult patients referred to the Pain Clinic between September and December 2017 2. Ability to read English; 3. Being over 18 years of age. The exclusion criteria were: 1. Poor English comprehension; 2. Medical or psychiatric disorders that would impact on the patient's ability to complete the survey.

### Data Analysis

Qualitative and quantitative strands were analysed separately and then merged to compare results. This convergent parallel design was chosen as it can provide a more complete understanding through using the strengths of both quantitative and qualitative data [15]. The seven steps for convergent mixed methods design were followed, namely (1) Collect the quantitative and qualitative data concurrently (2) Independently analyse both sets of data using best suited approaches (3) Decide how data sets will be compared (4) Decide what information will be compared (5) Complete analyses to produce needed comparative information (6) Represent comparisons (7) Interpret how the combined results answer the research questions.

For the quantitative results, categorical data were described using counts and percentages. Continuous data that approximated a normal distribution were described using means and standard deviations. Skewed data was described using medians and interquartile ranges. Differences in age and reason to listen to music by demographic variables were tested using independent sample t-tests or the Mann-Whitney U test where appropriate. The association between categorical variables was tested using the chi-squared test.

Cohen’s d was used to measure the size of the effect for continuous variables across two groups, with d=0.2 representing a small effect, 0.5 medium and 0.8 large. Eta<sup>2</sup> was used to measure effect size for 3 or more groups, where 0.01, 0.06 and 0.14 represent a small, medium and large effect. Cramer’s V was used to measure the size of the effect between categorical variables, with V= 0.1, 0.3 and 0.5 for a small, medium and large effect respectively.

A 5% level of significance was used for all statistical tests with no adjustment made for multiple testing. All statistical analysis was undertaken using SPSS Version 22.

A full summary of measures used in the survey are included in Appendix Two.

The qualitative data was analysed using thematic analysis [16]. Merged results were compared with the research questions and assessed to see if they were congruent or divergent. Side-by-side comparison for merged data analysis was used at this stage and results were presented in a discussion format [15].

**Results**

*Quantitative Results*

The respondents were 63 females (58.9%) and 43 males (40.2%), with one respondent not specifying gender. The mean age of respondents was 53 years, with a range of 25 to 84 years and two respondents not specifying their age. The mean age of female respondents was 52 years with an age range of 26 to 84 years. The mean age of male respondents was 55 years with an age range of 25 to 79 years. The majority of respondents were married (n=62, 57.9%) or single (n=20, 18.7%) and seventy were educated to secondary school level (65.5%).

*Quality of life and health*

Respondents were asked to rate their quality of life on a five-point scale (very poor, poor, neither good nor poor, good or very good). The majority of respondents rated their quality of life as good (n=34, 31.8%) or poor (n=26.2, 26.2%) The average rating was neither good nor poor. Health satisfaction was rated on a similar five-point scale ranging from very dissatisfied to very satisfied. Most respondents were dissatisfied with their health (n=45, 42.0%) or neither satisfied nor dissatisfied (n=26, 24.3%).

The extent to which physical pain prevents a respondent from doing what they need to do was also rated on a 5-point scale (not at all, a little, a moderate amount, very much, an extreme amount). Over half of the respondents (n=54, 50.5%) said pain very much prevented them from doing things with twenty-nine percent (n=31) being affected a moderate amount.

*Frequency of music listening and importance of music*

Two questions were asked in relation to how often respondents listened to music. Firstly, a five-category rating scale for frequency was given and then respondents were asked to write the number of hours spent listening per day. The results from the first question are displayed below (see Table 1).

**Table 1.** Frequency of music listening

Frequency	All respondents	Female respondents	Male respondents
Not very often	15.9% (n=17)	14.3% (n=9)	18.6% (n=8)
Some days	20.6% (n=22)	19.0% (n=12)	23.2% (n=10)
Most days	33.6% (n=36)	33.3% (n=21)	32.6% (n=14)
Once a day	5.6% (n=6)	4.8% (n=3)	7.0% (n=3)
Often as possible	22.4% (n=24)	25.4% (n=16)	18.6% (n=8)
No response	1.9% (n=2)	3.2% (n=2)	0% (n=0)

The greatest percentage of respondents (33.6%) can be seen in the table above as listening to music most days. This is true across gender also (F=33.3% and M=32.6%). A further 28% listen to music once a day or more. The number of hours on average for listening to music per day ranged between zero and twelve hours. 84 respondents gave a numerical figure, 9 respondents described their listening habits in words (e.g. “as much as I can”, “varies” or “night time”) and fourteen respondents did not answer. The descriptive responses were omitted from further analysis. The mean number of hours spent listening to music was two hours. There was a small difference noted in the average hours spent listening between the genders (F=2.1hrs, M=1.9hrs). Over half of the respondents (55.9%) reported listening to more than an hour of music per day.

The survey also asked respondents to rate how important music is to them. A 4-category rating scale was used to capture this, and one hundred and seven responses were obtained. The results are presented below (see Table 2).

Table 2. Importance of music

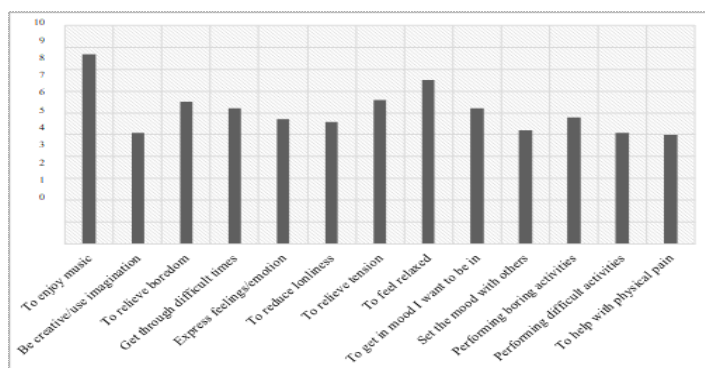
Importance	All respondents	Females	Males
Not at all important	9.4% (n=10)	8.0% (n=5)	11.6% (n=5)
A little important	37.4% (n=40)	33.3% (n=21)	44.2% (n=19)
Quite important	30.8% (n=33)	34.9% (n=22)	25.6% (n=11)
Very important	22.4% (n=24)	23.8% (n=15)	18.6% (n=8)

Most respondents (37.4%, n=40) rated music as a little important in their lives with a further 53 % (n=57) rating music as more important than this. Overall females rated music as more important than males with 60% (n=37) of females rating music as quite or very important compared to 44% (n=19) of males. Ninety one percent rated music as somewhat important to them.

Reasons for listening to music

Participants were asked to rate the reasons why they listen to music. 13 options were given with a rating from 0 to 10 in a matrix format. The mean ratings for each reason are presented below (see Figure 1).

Figure 1. Reasons for listening to music



The highest rated reason for listening to music was “to enjoy music” with a mean rating of eight point seven (n=82, SD=2.0). This was followed by “to feel relaxed” (7.5, SD=2.8), “to relieve tension” (6.6, SD=3.1) and “to relieve boredom” (6.5, SD=3.3). “To help with physical pain” was the reason with the lowest mean score (5.0). The mode score for this reason was 0 (n=16) and 10 (n=16) with a standard deviation of three point eight. The largest disparity between the genders were in “to be creative/use my imagination” (F=5.3, M=4.4) and “to set the mood with others” (F=5.4, M=4.5). Eleven

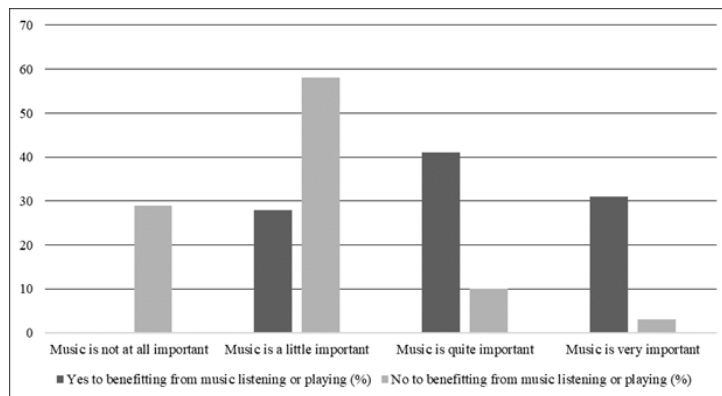
respondents (10.3%) left this question completely blank and forty-eight respondents (44.9%) had the matrix fully filled.

Playing, benefitting from and accessing music

In addition to questions modelled on the Mitchell et al. survey, questions were included to investigate whether respondents play or sing, if they benefit from music playing or listening, and if pain has changed the way they access music [15]. 12 % (n=23) of respondents answered yes to playing an instrument or singing. 16 respondents reported that they sing while nine play an instrument (two doing both).

69% percent (n=74) of respondents find they benefit in some way from music listening or playing. A higher percentage of females (75.4%) find they benefit from music than males (62.7%). Seventy respondents chose to comment further on how they benefit. These findings are presented with the qualitative results. Interestingly, those who said “yes” to benefitting in some way from music listening or playing, had a higher rating of personal importance of music. This can be seen below in Figure 2.

Figure 2. Personal importance of music in relation to yes/no respondents



Participants were next asked to rate if chronic pain has changed the way they access music on a five-point scale ranging from not at all to an extreme amount. It was found that forty-eight percent stated that it had not changed their access while forty-six percent found it had. Seven respondents chose not to answer.

Interest in Music Interventions

To assess the potential for music interventions within the outpatient pain clinic setting, participants were asked about their interest in availing of music therapy or partaking in a choir for people with chronic pain. A short definition of music therapy was given as follows; “Music Therapy is the use of music to accomplish goals (such as relaxation, emotional expression or interaction) within a therapeutic relationship with a trained music therapist”. Participants were then asked to rate their interest on a 5-point scale. The results are presented below (see Table 3).

**Table 3.** Interest in Availing of Music Interventions

Interest	MT (all)	MT (f)	MT (m)	Choir (all)	Choir (f)	Choir (m)
Not at all	25.2%	23.8%	27.9%	61.7%	63.5%	58.1%
A little interested	16.8%	20.6%	11.6%	8.4%	6.3%	2.3%
A moderate amount	18.7%	17.4%	18.6%	5.6%	6.3%	11.6%
Very much interested	20.6%	22.2%	18.6%	7.5%	9.5%	4.7%
Unsure	12.2%	8.0%	18.6%	11.2%	6.3%	18.6%
Unanswered	6.5%	8.0%	4.7%	5.6%	8.0%	4.7%

The results show 56% of respondents as having an interest in availing of music therapy as part of their treatment while only twenty-one percent of respondents would be interesting in partaking in a choir. Male respondents showed lower levels of interest and higher levels of uncertainty in availing of music interventions. 60% of female respondents were interested in music therapy compared to 49% percent of male respondents. Of those who expressed an interest in music therapy (n=60) 97% percent had rated music as somewhat personally important (a little/quite/very important).

*Staff Survey*

There were 7 responses to the staff survey, two doctors, four nurses and one administrator (F=5, M=2). Similar to the patient survey, a five-point scale was used to measure personal importance of music. The average rating for staff was 4. It was found that half of staff currently use music in the workplace (in the office, during procedures and in theatre). Staff were also asked if they thought music listening is of benefit to patients with chronic pain and if they thought playing music or singing could be of benefit to patients with chronic pain. For both questions a 5-point rating scale was used ranging from not beneficial to very beneficial. The mean rating for both questions was five (very beneficial).

Finally, staff were given a brief definition of music therapy (“Music Therapy is the clinical and evidence-based use of music interventions to accomplish individualized goals within a therapeutic relationship by a trained therapist”) and asked if they see a role for music therapy in the treatment of patients with chronic pain. One hundred percent of respondents answered yes. Two respondents chose to comment at the end of the survey. One said, “I see a role in preparing patients for consultation (among others)” and the other said “Music lifts the soul, it can evoke many emotions, it can take you to another place, when listening to calm, melodic music the body relaxes”.

*Qualitative Results*

Three questions in the patient survey gathered open responses. The first question asked in what way respondents felt they benefitted from music listening or playing, the second asked whether respondents felt that music has helped in coping with any aspect of illness, the final question was left open for any further comments. From these responses three major themes emerged in analysis, as presented below (see Table 4).

**Table 4.** List of themes and subthemes

<b>1. Music for relaxation</b>
Calming the mind
Tension relief
Sleep
<b>2. Positive response to music</b>
Positive mood: happiness, uplifting, feel good
Love and enjoyment of music
Connection to heart and soul
<b>3. Music for coping</b>
Distraction from pain
Coping with negative emotion
Getting through tough times

### Theme 1: Music for relaxation

Unsurprisingly, in the open response questions many respondents commented on the relaxation that comes with music listening both as a benefit and as a way of coping with illness. Over half of respondents ( $n=54$ ) mentioned finding music relaxing or calming in some way. Some mentioned relaxing the body in pain and relieving tension, while others mentioned calming the mind and using music as an aid for mindfulness or meditation. Some mentioned both: “I find music relaxes the mind and body”. A subtheme that was identified within relaxation was sleep as five respondents commented on music aiding sleep.

*It helps me relax and sleep better. I always listen to music when I go to bed at night.*

### Theme 2: Positive response to music

Many respondents ( $n=33$ ) mentioned how music can elevate or improve their mood. Music was described as something that brings happiness, joy, cheer and is uplifting. Some respondents mentioned their love of music and how they benefit from enjoyment:

*Music helps create positive mental attitude. I've loved music since childhood. Mood and pain have an awful impact on enjoyment. Fortunately, I'm starting to enjoy music again.*

Music was also described as something for the heart, soul and spirits.

*It brightens my spirits, it lifts my heart, and it is good for the soul.*

### Theme 3: Music for coping

Many respondents commented on how music helps them cope.

*I think music helps you cope sometimes when you feel bad with your pain; you don't have to complain about how you feel to anyone.*

Coping with negative emotion and with pain were both identified. Using music to help get through the day or difficult times was also mentioned. The concept of forgetting, focussing on music rather than pain or “taking my mind off pain” was mentioned most often:

*It sometimes helps me to focus on something else and I can take my mind off pain.*

Depression, anxiety, loneliness, stress, grief and “feeling down” were mentioned as emotional states that music helps in coping with:

*You cope better when you are depressed when you listen to music.*

Some respondents commented that music does not help them in coping with illness ( $n=30$ ).

### Notable responses outside themes.

Although not falling within the three major themes, there were some notable comments that seem particularly relevant to this population, particularly how music does not always help take pain away:

*[Music] does not take away physical pain and despite being a distraction, when I'm at my highest peak of pain it irritates me.*

*Takes my mind off pain and try to settle when it's bad. But it does not take my pain away.*

Others commented on trying new ways of coping:

*I would love to find a way that my struggle with living would be made easier especially my mental health.*

*I will try anything if it benefits me.*

To summarize the results from the quantitative data give an indication of the music listening habits of one hundred and seven respondents and show their interest in further music interventions as part of their chronic pain treatment. The qualitative results show themes arising including music for relaxation, positive responses to music and music for coping. In the following section the quantitative and qualitative results will be linked through side-by-side comparison and checked for congruency. The results will be interpreted further in relation to the research questions and integrated with other studies findings.

Recommendations for further research will also be discussed.

## Discussion

This study discovered that patients with chronic pain use music for a number of reasons, primarily for enjoyment, relaxation, to change mood and for coping. Personal importance and choice of music is paramount. The outpatients surveyed showed interest in receiving music therapy and there is some evidence that music is used to aid sleep, relieve tension and may be a useful therapy to improve quality of life and coping. However, findings should be treated with caution and further research is required with larger samples.

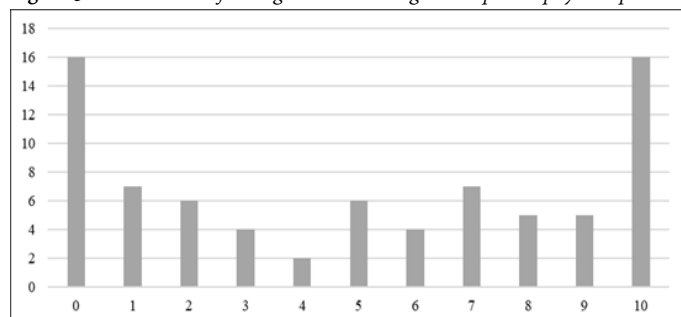
A side by side comparison of the quantitative and qualitative results (see table 5) shows congruency in the findings on using music listening for enjoyment and relaxation, the benefits of listening and playing, using music to change mood and using music for coping. There seems, however, to be some discrepancy in the results around using music to help cope with physical pain (See Table 5).

**Table 5.** Side by side comparison of quantitative and qualitative results

Finding	Quantitative Result	Qualitative Result
<b>Listening to music for enjoyment</b>	Most highly rated reason for listening (mean rating of 8.7).	Enjoyment and other positive responses to music reported (uplifting, happiness, love of music).
<b>Listening to music for relaxation</b>	“To feel relaxed” rated as second highest reason for listening to music (mean rating of 7.5). “To relieve tension” rated third highest (mean rating of 6.6).	Using music to relieve tension. Using music to calm the mind. Using music to aid sleep.
<b>Benefitting from listening to or playing music</b>	69% of respondents reported benefitting.	Over half of respondents to open questions mentioned finding music relaxing or calming in some way.
<b>Using music to change mood</b>	“To get in the mood I want to be in” rated 6.2. “To express feelings or emotions” rated 5.7.	33 respondents mentioned how music can elevate or improve their mood. Respondents mentioned using music to cope with negative emotions such as stress, depression or anxiety.
<b>Using music for coping</b>	“To get through difficult times” rated 6.2 as reason for listening. “To perform difficult activities” rated 5.1 as reason for listening. 56% respondents interested in availing of music therapy as part of their treatment.	Using music to help get through the day or difficult times, forgetting, focussing on music rather than pain. Some respondents commented that music does not help them in coping with illness (n=30).
<b>Using music for pain</b>	“To help with physical pain” rated lowest of all reasons for listening to music (mean rating of 5.0)	Using music to divert from pain mentioned by a few: “taking my mind off pain”.

The lowest rated reason for listening to music was “to help with physical pain”. However, when we look at the distribution of the ratings (figure 3) and consider the standard deviation (SD=3.8), the picture appears more complex. The personal importance of music appears to be an influencing factor here, as with the findings on benefitting from music listening or playing. Those who rated “to help with physical pain” with zero had also rated the personal importance of music as low. Those who rated “to help with physical pain” with ten, had rated the personal importance of music as high. A similar result and standard deviation was found in the Mitchell et al. (2007) postal survey. The inconsistency in response was comparable in the qualitative findings where using music for coping with pain was mentioned by some, but others stated outright that music does not take away their pain (See Figure 2).

**Figure 3.** Distribution of rating music listening “to help with physical pain”



It is unsurprising that many respondents chose to comment on their enjoyment of music when this was rated the highest reason for listening to music. In childhood, music is a natural part of play and is seen as a fun activity. As we grow music is often a pastime or hobby to be enjoyed. Enjoyable activities and meaningful occupation are often things that can impact on our quality of life. As stated earlier quality of life may be reduced, as pain disrupts social engagement, relationships, employment status and daily activities.

Enjoyment should not be overlooked as an important aspect of self care and coping [6]. With the mean quality of life rating for this sample being “neither good nor poor”, perhaps music listening is an enjoyable activity that can serve to improve this. In the context of music therapy, enjoyment of music is rarely a goal and music therapists generally aim to discourage referrals simply because a client likes music. However, important improving quality of life and identifying enjoyable activities may be a suitable goal for music therapy with this population [17].

Relaxation and tension relief were highly rated reasons for listening to music in the quantitative findings (see Table 6). This is reflected in the qualitative findings where the relaxation that comes with music listening was mentioned both as a benefit and as a way of coping with illness. An additional finding in relation to relaxation was: the use of music for sleep. In chronic pain, sleep disturbance is a prevalent complaint [18]. The use of music for aiding sleep

may be another way in which music is used for coping with chronic pain (see Table 6).

**Table 6.** *Ranking of reasons for listening to music*

Reason for listening to music	Mean rating
1. To enjoy music	8.7
2. To feel relaxed	7.5
3. To relieve tension	6.6
4. To relieve boredom	6.5
5. To help me get through difficult times	6.2
6. To help get me in a mood I want to be in	6.2
7. Helps perform activities I would normally find boring	5.8
8. To express my feelings/emotions	5.7
9. To reduce loneliness	5.6
10. To set the mood when I'm with others	5.2
11. To be creative/use my imagination	5.1
12. Helps perform activities I normally find difficult	5.1
13. To help with physical pain	5

Differences were also seen in the perceived benefits in relation to gender and personal importance of music [15]. In relation to gender, this study found an additional link between gender and interest in availing of music therapy as female respondents were more interested in music therapy than male respondents (F=60%, M=49%).

As stated earlier in the literature review, psychological disorders, such as major depressive disorder, have been linked to chronic pain [6, 7, 8]. The qualitative results of this study saw respondents mentioning depression, anxiety, loneliness, stress, grief and “feeling down” as emotional states that music helps in coping with. One respondent mentioned wanting to find ways in which their struggle with living, especially with mental health, could be eased. The Cochrane review on music therapy for depression found short-term beneficial effects including improvement in depressive symptoms, decreased anxiety levels and improved functioning of depressed individuals [19]. This could be of significance for those with chronic pain if we look to a more holistic treatment approach that addresses not only the physical pain but the wider impact this may have on a person and their life.

*A rationale for music therapy in this context*

From the data gathered, it seems that there is potential for the use of music therapy at an outpatient pain clinic. The responses from staff indicate that they see music as beneficial for patients with chronic pain, and that they see a role for music therapy in the treatment of these patients. There is also interest from the patients surveyed in availing of music therapy as part of their treatment. Music therapy could potentially assist in areas that were not so highly rated as reasons for music listening, such as emotional expression and managing physical pain. Group music therapy could address

social isolation and reduce loneliness which often occurs in chronic illness [20, 21].

Music therapy could potentially assist patients in developing music-based tools and strategies for coping with chronic pain (physically and emotionally). This could build on findings supporting the use of music as an effective self-management treatment [12]. A music therapist could provide techniques to be employed by the patient in their daily lives to cope with chronic pain. In doing this, a resource-oriented approach to music therapy may be suitable for music therapists working with people with chronic pain. This approach puts the client’s resources and strengths at the centre of the collaborative process as things to be acknowledged, activated and developed [22]. Rolvsjord describes a person’s resources as having “a moderating or buffering function, which reduces the negative effects of life stress” (2010, p.76). In the context of chronic pain, activating a person’s resources could empower them in managing and coping with their chronic illness.

*Limitations*

A limitation of this study can be seen in the qualitative section which would add more depth of understanding if extended, as well as a small sample size for the staff survey. It is advised that larger sample sizes for quantitative study and in-depth interviews would extend the findings and allow generalisation of results.

In this survey response rate was not accurately captured as the researcher could not be present to record this due to limited time. A general sense of response rate being high was fed back verbally to the researcher from staff at the pain clinic. In reflection, this is a limitation of the study and a potential source of bias.

*Recommendations*

It is recommended that a trial of music therapy be undertaken at an outpatient pain clinic to test and develop the relevance of these findings for music therapy in the chronic pain experience. There appears to be enough interest in the intervention and a strong rationale for the use of music therapy to address some of the complex needs that individuals with chronic pain may have. A feasibility study could further examine the potential for integrating music therapy into treatment for people with chronic pain. A feasibility study looking at vocal music therapy for chronic pain management for inner-city African Americans could be a suitable model for such a study [20]. This was a mixed methods study which used qualitative data imbedded within a randomised control trial. More evidence-based studies in this area with larger sample sizes and longer duration would be recommended to strengthen the rationale for music therapy in chronic pain. In addition to this, it may be interesting to compare the



outcomes of music therapy for those who rate music as highly important to those who rate it as less important.

Not many patients with chronic pain or doctors treating chronic pain use music in treatment. This is to be expected, given that the volume of research in this area is relatively small. The support and approval from a consultant anaesthetist and other staff members at a hospital outpatient pain clinic at a general hospital were integral to the success of this project. Music therapy is slowly beginning to become more visible and utilised in medical settings.

People in this pain clinic setting rated music as somewhat important to them (91%) with over half listening to more than an hour of music per day. Sixty-nine percent of patient respondents benefit in some way from music listening or playing. The benefits include relaxation, enjoyment, positive responses to music, tension relief and coping. This indicates potential for a low-cost, non-invasive intervention with minimal side effects and warrants further investigation.

Staff rated music as very beneficial for people with chronic pain and one hundred percent said they see a role for music therapy in the treatment of people with chronic pain. This research shows that there is potential to use music therapy as a non-pharmacological approach to assist people in developing music-based resources and strategies for managing chronic pain. Music therapy could be used not only to address physical needs related to pain, but also the surrounding social, emotional and psychological needs of people with chronic pain. Further investigation is recommended to test the outcomes of music therapy specifically in this setting and to develop the evidence.

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## APPENDICES

### Appendix One - Patient Survey

#### **PATIENT'S USE OF MUSIC IN THEIR EXPERIENCE OF CHRONIC PAIN CONFIDENTIAL SURVEY**

##### **Question One**

What is your gender? Male / Female (please circle)

##### **Question Two**

How old are you? \_\_\_\_\_ (age in years)

##### **Question Three**

What is the highest education you received?

None at all / Primary / Secondary / Tertiary (please circle)

##### **Question Four**

What is your marital status?

Single / Married/ Living as married / Separated / Divorced / Widowed (please circle)

##### **Question Five**

Please read the following statements and tick the box that best describes your thoughts and feelings over the last two weeks.

How would you rate your quality of life?

- Very poor
- Poor
- Neither good nor poor
- Good
- Very good

How satisfied are you with your health?

- Very dissatisfied
- Dissatisfied
- Neither satisfied nor dissatisfied
- Satisfied
- Very satisfied

To what extent do you feel that physical pain prevents you from doing what you need to do?

- Not at all
- A little
- A moderate amount
- Very much
- An extreme amount

**Question Six**

How often do you listen to music? (please tick)

- Not very often
- Some days
- Most days
- Once a day
- Often as possible

**Question Seven**

On average, how many hours per day do you spend listening to music?

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**Question Eight**

How important is music to you? Please tick one option that applies to you below.

- Not at all important
- A little important
- Quite important
- Very important

**Question Nine**

Please rate the following reasons on why you listen to music.

0 meaning you disagree, 10 meaning you fully agree.

Reason	0	1	2	3	4	5	6	7	8	9	10
To enjoy music											
To be creative/use my imagination											
To relieve boredom											
To help me get through difficult times											

To express my feelings/emotions																			
To reduce loneliness																			
To relieve tension																			
To feel relaxed																			
To help get me in a mood I want to be in																			
To set the mood when I'm with others																			
Helps me perform activities I would normally find boring																			
Helps me perform activities I would normally find difficult																			
To help with physical pain																			

**Question Ten**

Do you play an instrument or sing?

- Yes (please describe) \_\_\_\_\_
- No

**Question Eleven**

Do you find you benefit in any way from music listening or playing?

- Yes
- No

If yes, in what way?

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**Question Twelve**

Has chronic pain changed the way you access to music?

- Not at all
- A little
- A moderate amount
- Very much
- An extreme amount

**Question Thirteen**

Please comment freely on whether you feel that music has helped in coping with any aspect of illness.

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**Question Fourteen**

Music Therapy is the use of music to accomplish goals (such as relaxation, emotional expression or interaction) within a therapeutic relationship with a trained music therapist.

If music therapy was offered as part of your treatment, would you be interested in availing of it?

- Not at all
- A little interested
- A moderate amount
- Very much interested
- Unsure

**Question Fifteen**

Would you be interested in partaking in a choir specially set up for people with chronic pain?

- Not at all
- A little interested
- A moderate amount
- Very much interested
- Unsure

Please feel free to comment on any part of the survey above.

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*Thank you for participating in this survey.*

**Appendix Two - Staff Survey**

**STAFF PERCEPTIONS OF THE USE OF MUSIC IN CHRONIC PAIN  
CONFIDENTIAL SURVEY**

**Question One**

What is your gender? Male / Female (please circle)

**Question Two**

What is your role at the pain clinic? (please circle)

Doctor

Nurse

Administration

Psychologist

Clinical Therapist

Healthcare Assistant

Other (please explain) \_\_\_\_\_

**Question Three**

Is music personally important to you? (please circle rating)

Not important                      Very important

1      2      3      4      5

**Question Four**

Do you ever access music in the workplace (music listening or otherwise)?

Yes / No (please circle)

If yes, please give details

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**Question Five**

Do you think music listening is of benefit to patients with chronic pain? (please circle rating)

Not beneficial                      Very beneficial

1      2      3      4      5

**Question Six**

Do you think playing music or singing could benefit patients with chronic pain?

Not beneficial                      Very beneficial

1      2      3      4      5

**Question Seven**

Music Therapy is the clinical and evidence-based use of music interventions to accomplish individualized goals within a therapeutic relationship by a trained therapist.

Do you see a role for music therapy in the treatment of patients with chronic pain?

Yes / No / Unsure (please circle)

Please feel free to comment on any of the above.

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### Appendix 3 Survey statistical analysis

#### Demographic variables:

Gender, age, education

Marital status: recoded into three categories for analysis; single, married/living as married, separated/divorced/widowed.

#### Quality of life and health variables:

Quality of life (QOL): Respondents were asked to rate their QOL on a five-point scale (very poor, poor, neither good nor poor, good or very good. This was recoded for purpose of analysis to ‘very poor / poor’, ‘neither good nor poor’, ‘good / very good’.

Health: Health satisfaction was rated on a similar five-point scale ranging from very dissatisfied to very satisfied. The extent to which physical pain prevents a respondent from doing what they need to do was also rated on a five-point scale (not at all, a little, a moderate amount, very much, an extreme amount). These were recoded into three categories .

#### Music habit variables:

Music frequency: A five-category rating scale was used to measure the frequency of music listening. Recoded into 4 categories.

Music importance: A four-category rating scale.

Reasons for listening: Participants were asked to rate the reasons why they listen to music. Thirteen options were given, with a 0-10 rating.

Music participation: Participants were asked if they play/sing.

Access: if chronic pain has changed the way they access music on a five-point scale ranging from not at all to an extreme amount.

#### Music intervention:

Music intervention: To assess the potential for music interventions within the outpatient pain clinic setting, participants were asked about their interest in availing of music therapy or partaking in a choir for people with chronic pain. A short definition of music therapy was given as follows; “Music Therapy is the use of music to accomplish goals (such as relaxation, emotional expression or interaction) within a therapeutic relationship with a trained music therapist”. Participants were then asked to rate their interest in both on a 5-point scale.